

Magnetic power offers energy-saving alternative

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The Office of Naval Research has designed a system that controls electrical flow for lighting, a highly efficient platform that may spark a new era of power savings.

Designed by the Tokyo Institute of Technology and fine-tuned by researchers at MERSTech in partnership with the ONR's office in Tokyo, the [Magnetic Energy](#) Recovery Switch (MERS) harnesses and recycles residual magnetic power that is produced by electrical current. By using a device that controls the flow of electricity, [light bulbs](#) can now maximize their potential. The proposal for the expanded experiment is scheduled for completion in October.

Dr. Chandra Curtis, program officer in ONR Global's Tokyo office, said she is excited about the potential for mass consumption savings.

"We initially started by helping [MERSTech and the Tokyo Institute of Technology] optimize the development and assess the potential of the technology" Curtis said. "Now, we are looking for ways to demonstrate our commitment of [energy savings](#) to the Japanese government."

This technology directly aligns with Mabus' goals for the Department of the Navy, which were set at the 2009 Naval Energy Forum. Aside from utilizing renewable power sources for at least half of the shore-based energy on Navy bases, Mabus iterated a goal to ensure that at least 40 percent of the Navy's total energy consumption comes from alternative sources by 2020.

From April to June 2010, ONR Global funded a series of experiments at Tokyo's Hardy Barracks Installation to analyze and evaluate the energy saving capability of the MERS lighting controller. After working with several overhead fluorescent lights that require 24-hour power, scientists proved that the MERS technology significantly reduced lighting [energy consumption](#).

"After the testing was complete, we learned that with the new device installed there was a peak [power](#) saving of 39 percent," Curtis said. "The device not only conserves electricity, but produces far less heat and produces less electromagnetic interference than conventional technologies."

A proposal to apply the experiment to the entire Hardy Barracks Installation will be completed by the end of October 2010, carrying the project into 2011 if approved. Proposed testing areas include a break room, printing press room, laundry room, gymnasium and several offices.

"In trying to align with the Joint Statement of the U.S.-Japan Security Consultative Committee, scientists are trying to help reduce the impact on local communities by reducing the energy footprint of existing U.S. installations, becoming more responsible stewards of the environment," Curtis said.

The U.S. Energy Information Administration estimates that in 2008 about 517 billion kilowatt-hours of electricity were used for lighting by the residential and commercial sectors. Lighting accounts for nearly 20 percent of the average home's electricity use, according to the U.S. Environmental Protection Agency.

Provided by Office of Naval Research

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